

Title (en)  
WATERBORNE COATING COMPOSITION

Title (de)  
WÄSSRIGE BESCHICHTUNGSZUSAMMENSETZUNG

Title (fr)  
COMPOSITIONS DE REVÊTEMENT À BASE D'EAU

Publication  
**EP 3892682 A1 20211013 (EN)**

Application  
**EP 20169053 A 20200409**

Priority  
EP 20169053 A 20200409

Abstract (en)

The present invention generally relates to the field of cross-linkable aqueous vinyl polymer dispersions, to a coating composition comprising said cross-linkable aqueous vinyl polymer dispersions; to a paint formulation comprising said cross-linkable aqueous vinyl polymer dispersions; and to an article coated with the coating composition or the paint formulation. In particular, the present invention provides an aqueous vinyl polymer dispersion PD which comprises the following polymers:- 1) an aqueous dispersion of a vinyl polymer P1 obtainable by free radical emulsion polymerization of a monomers mixture comprising:a) 5 to 20 wt% acid functional ethylenically unsaturated monomers M1 or precursors thereof;b) 5 to 25 wt% ethylenically unsaturated monomers M2 containing a polyethylene glycol or monoalkoxy polyethylene glycol moiety;c) up to 90 wt% of non-ionic ethylenically unsaturated monomers M3 other than M1 or M2;d) 0 to 10 wt% ethylenically unsaturated monomers M4 with a functional group for cross-linking after film-formation;e) 0 to 10 wt% of at least one chain transfer agent CTA;where the sum of the wt.% of M1+M2+M3+M4+CTA = 100 wt%;- 2) an aqueous dispersion or solution of a vinyl polymer P2 obtainable by free radical copolymerization of:a) from 25 to 95 wt% of a ethylenically unsaturated monomers M5 selected from the group of N-vinyl amides with general structure:where  $R_{<sub>1</sub>}$  and  $R_{<sub>2</sub>}$  are alkyl from  $C_{<sub>1</sub>}$  to  $C_{<sub>5</sub>}$  and may be connected to form a ring-structure, preferably N-vinyl pyrrolidone or N-vinyl caprolactam;b) from 5 to 75 wt% of non-ionic ethylenically unsaturated monomers M3' other than M5c) from 0 to 5 wt% of ethylenically unsaturated monomers M4' with a functional group for cross-linking after film-formationd) from 0 to 10 wt% acid functional ethylenically unsaturated monomers M1' or precursors thereof;e) from 0 to 5 wt% of at least one chain transfer agent CTA';where the sum of the wt.% of: M5+M3'+M4'+M1'+CTA' = 100 wt%;- 3) a film-forming vinyl polymer P3 under the form of an aqueous dispersion comprising:i) from 20 to 60 wt% of a water-soluble or water dispersible crosslinkable vinyl oligomer OL obtained by emulsion polymerizing a monomer mixture comprising :1) at least one acid functional ethylenically unsaturated monomer M1";2) at least one ethylenically unsaturated monomer M4" with functionality for crosslinking upon film-formation, other than M1";3) at least one ethylenically unsaturated monomer M3" other than M1" and M2", and5) optionally, at least one chain transfer agent CTA", andii) from 40 to 80 wt% of a high molecular weight vinyl polymer P4 prepared by emulsion polymerizing, in the presence of the water-soluble or water-dispersible crosslinkable vinyl oligomer OL, a monomer mixture comprising:1) optionally one acid functional ethylenically unsaturated monomer M1"";2) optionally one or more ethylenically unsaturated monomers M4"" with functionality for crosslinking upon film-formation, other than M1"";3) at least one ethylenically unsaturated monomer M3"" other than M1"" and M2"" and4) optionally, one or more multifunctional ethylenically unsaturated monomers for pre-crosslinking, M5"", preferably in an amount less than 5 wt%.- Where the total weight of film-forming vinyl polymer P3 = wt.% of the water-soluble or water dispersible crosslinkable vinyl oligomer OL + wt.% of the high molecular weight vinyl polymer P4= i) + ii) = 100 wt% and- Where the total weight of the vinyl polymer in the aqueous vinyl polymer dispersion PD = wt.% of the vinyl polymer P1 + wt.% of the vinyl polymer P2 + wt.% of the film-forming vinyl polymer P3 = 100 wt%.

IPC 8 full level

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C-Set (source: EP)

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Citation (applicant)

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